

REMARKS

Previously pending claims 1-12 are currently being cancelled in lieu of new claims 13-24. In particular, new claims 13-24 state copolymer (B-1) is a propylene/ethylene copolymer, with the copolymer (B-1) comprising from more than 50% by weight to 85% by weight of propylene. Basis for new claims 13-24 can be found throughout Applicant's specification, including page 4, lines 9-11.

The new claims presented herein do not introduce new matter within the meaning of 35 U.S.C. §132. Accordingly, the Examiner is respectfully requested to enter these amendments.

1. Rejection of Claims 1-6 Under 35 U.S.C. §102(b)

The Office Action of April 3, 2008 states that claims 1-6 are rejected under 35 U.S.C. §102(b) as being anticipated by Tanaka, et al. (U.S. Patent 6,191,219). In particular, the aforementioned Office Action states,

1.1. Regarding Claim 1, Tanaka discloses polypropylene composition, comprising (see claim 1):

Component (A) - 50-90 wt% of polypropylene component, including (see lines 40-60, column 2) homopolymer of propylene or copolymers with alpha-olefins, wherein alpha-olefin content is preferably less than 8 wt.-%-this component has same composition as Applicant's component (A)

Component (B) - 3-40 wt.% of ethylene/alpha-olefin copolymer, with ethylene content of 60 to 95 mole%, and molecular weight distribution (M_w/M_n), determined by gel permeation chromatography is less than 3 - this components reads on Applicant's component B2

Component (C) - 2-20 wt.% of propylene/ethylene/1-butane copolymer, wherein propylene content is 50-85 mole% - same

as in Applicant's component B1.

1.2. Tanaka silent about viscosity ratios between components A,B and C. However, viscosity range for component B (see line 50,page 4) is same-0.5 to 5.0 dl/g - as viscosity for Applicants component B2 (see paragraph [0027], page 2).

Note, viscosity is inherent function of molecular weight and molecular weight distribution for polymers of the same chemical composition and can be also characterized by melt flow rate (MFR). Tanaka further discloses that preferable MFR range for component A is from 1 to 50 g/10min.(see line 20, column 3), which is fully encompasses range of 0.3 to 15 g/10 min, claimed by Applicant(see paragraph [0017], page 2); for component B (see line 35, column 2) is from 0.5 to 10 g/10 min., and for component C (see line 60, column 6) is from 0.1 to 10 g/10 min.

Thus, viscosity ranges and ratios determine by MFR or by actual viscosity measurement will be in the same ranges as claimed by Applicant in Claims 1 and 2. Burden shifts to Applicant to prove the contrary by presenting factual comparative results.

1.3. Tanaka further discloses that important parameter for component B, (see lines 1 to 45, column 4) indicated state of compositional distribution of structural units or randomness of chain distribution, which is equivalent of CSD or blockness, claimed by applicant in Claim 1 for same component (B2).

Tanaka explained that randomness (B-value) could be in a range from 0 to 2 : 'The B-value equals 2, when both the comonomer units are ideally alternating in the ethylene/.alpha.-olefin random copolymer, and equals to zero, when both the comonomer units are present in the copolymer as ideal block-copolymer by being completely separately polymerized.' (see column 4,lines 27-43).

Note, that range of B-value discloses by Tanaka anticipate range of blockness values of 0.8 or less as it claimed by Applicant.

1.4. Presence of 'heterologus bond' claimed by Applicant in Claim 3 is inherent property of all propylene copolymers and depend on implemented catalytic system and polymerization conditions. Tanaka discloses presence and importance of this type of microstructure for specific

applications (see lines 45-65, column 7) .

1.5. Tanaka silent regarding stereoregularity of component A claimed by Applicant in Claim 4. However, stereoregularity is inherent property of polypropylene component and depend on type of catalytic system and polymerization process used for manufacturing of a particular propylene polymer. Because Tanaka discloses that polypropylene resin (A) can be produced by processes with solid titanium or metallocene catalyst (see line 5-10, column 3), same as Applicant indicated in disclosure, than degree of stereoregularity will be identical for both polymers.

1.6. Tanaka also silent regarding morphology of obtained films from polypropylene composition, particularly about layers or needles, in specific sizes and aspect ratios as claimed by Applicant in Claim 5.

Again, phase morphology is inherent property of the composition and depends on compatibility of ingredients and relative quantities. Some production technique could alternate some aspects of phase morphology, but Applicant does not discloses or claimed any specific production technique. Burden shifts to the Applicant to provide factual evidence to the contrary.

1.7. Regarding Applicant's claim 6, Tanaka discloses that this composition specifically useful for superior non-stretched(good mechanical properties), transparent and impact resistant film.

RESPONSE

Claims 1-6 have been cancelled, rendering the rejection thereof moot. Notwithstanding, Applicant preemptively traverses any rejection to new claims 13-24 to Tanaka, et al.

As outlined in Applicant's previous responses, for a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the

claims is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). There must be no differences between what is claimed and what is disclosed in the applied reference. *In re Kalm*, 154 USPQ 10, 12 (CCPA 1967); *Scripps v. Genentech Inc.*, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. *Ex parte Levy*, 17 USPQ2d 1461, 1462 (BPAI 1990). And the Examiner is required to point to the disclosure in the reference "by page and line" upon which the claim allegedly reads. *Chiong v. Roland*, 17 USPQ2d 1541, 1543 (BPAI 1990).

Arguments outlined in all of Applicant's previous responses are incorporated herein by reference in their entirety.

With respect to the currently pending rejection to Tanaka, et al., Applicant has submitted new claims 13-24 herein for consideration by the Examiner. In particular, new claims 13-24 recite **copolymer (B-1) is a propylene copolymer with ethylene**, wherein the copolymer comprises from more than 50% by weight to 85% by weight of propylene. Alternatively, Tanaka, et al. discloses

that polymer (C) is a propylene/ethylene/1-butene **terpolymer**, which comprises 50-88% by mole of propylene, 2-30% by mole of ethylene, and **10-40% by mole of 1-butene, wherein the amount of 1-butene is greater than the amount of ethylene.** See col. 1, line 60 - col. 2, line 2; and col. 6, lines 33-42. Accordingly, for this reason alone, Applicant respectfully believes new claims 13-24 are novel over Tanaka, et al.

Additionally, Tanaka, et al. discloses the importance of the specifically described terpolymer, including the importance of the specifically described propylene, ethylene, and 1-butene monomer content ranges within the terpolymer. In particular, Tanaka, et al. discloses in col. 6, lines 43-49,

By adjusting the chemical composition of the propylene/ethylene/1-buten [sic] random copolymer (C) to the above proportion, the copolymer (C) will have a better balance between the elastomeric property, on the one hand, and the compatibilities of the copolymer (C) with the polypropylene resin (A) and with the ethylene/ α -olefin random copolymer (B), on the other hand.

Contrastingly, Applicant is currently claiming polypropylene resin compositions comprising components (A) and (B), wherein the resultant compositions have an improved balance of optical and mechanical properties, including transparency (i.e., low haze values), rigidity (i.e., high Young's modulus values), and impact resistance.

In particular, a valuable balance of properties is obtained by modifying the polypropylene component (A) as defined in the present

claims (i.e., a propylene homopolymer or a copolymer with up to 5% by weight of copolymer(s)) by addition of up to 60% by weight of a copolymer component (B) comprising two different propylene copolymers, namely (B-1) and (B-2), wherein (B-1) comprises more than 50% by weight of propylene, (B-2) comprises 50% by weight or less of propylene, and the ratio of the limiting viscosity of the copolymer (B-1) to the viscosity of the polypropylene component (A) ($[\eta]_{B-1}/[\eta]_A$) is 1.5 or less, while the ratio of the limiting viscosity of the copolymer (B-1) to the viscosity of copolymer (B-2) ($[\eta]_{B-1}/[\eta]_{B-2}$) is 0.8 or more.

The selection of the aforementioned components, in terms of composition and amounts, including the aforementioned limiting viscosity ratios, results in obtaining polypropylene resin compositions comprising an improved balance of optical and mechanical properties, such as those stated above (i.e., transparency, rigidity, and Young's modulus values), as demonstrated in the Examples of the present application.

In fact, with reference to Table 1 on pages 19 and 20 in Applicant's specification, Comparative Example 3 shows that when the value of $[\eta]_{B-1}/[\eta]_A$ is higher than 1.5, namely 1.8, the haze value becomes remarkably high, (i.e., 83), while Comparative Example 1 shows that when the value of $[\eta]_{B-1}/[\eta]_{B-2}$ is lower than 0.8 (i.e., 0.7), the haze value is lowered but still relatively high (i.e., 32) versus 24 or less in Examples 1-6. As shown in Comparative Example

4, a way of reducing the haze could be to increase the amount of ethylene in the polypropylene component (A) over the upper level of 5% by weight required by the present claims (e.g., namely 8% in Comparative Example 4); however, as a result, the Young's modulus is significantly decreased. On the contrary, the currently claimed compositions display much lower haze values and higher Young's modulus values, even when component (A) is a propylene homopolymer. Furthermore, the currently claimed compositions comprise a higher low temperature impact strength compared to compositions not having the currently claimed copolymer component (B-2). See Comparative Example 2 in Table 1 (cont.) on page 20 in Applicant's specification.

Therefore, for the reasons outlined above, Applicant respectfully believes not only are the currently claims compositions novel over Tanaka, et al., but that they are also patentably distinct over Tanaka, et al. As such, Applicant respectfully believes the instant rejection should be withdrawn.

Notwithstanding the above, Applicant respectfully traverses the Examiner's previous assertion on page 3, line 18 - page 4, line 2, of the Office Action having a mailing date of April 3, 2008, which states,

Tanaka explained that randomness (B-value) could be in a range from 0 to 2 : 'The B-value equals 2, when both the comonomer units are ideally alternating in the ethylene/.alpha.-olefin random copolymer, and equals to zero, when both the comonomer units are present in the copolymer as ideal block-copolymer by being completely separately polymerized.' (see column 4, lines 27-43).

Note, that range of B-value discloses by Tanaka anticipate range of blockness values of 0.8 or less as it claimed by Applicant.

However, Applicant respectfully disagrees with the Examiner's conclusion outlined above. In fact, the full disclosure surrounding the above-captioned portion of Tanaka, et al. highlighted by the Examiner states,

The ethylene/ α -olefin random copolymer (B) has preferably **a parameter (B-value)** for the randomness of chain distribution of monomeric units in the copolymer, determined by ^{13}C -NMR, **in the range of 1.0-1.4**. The B-value is a parameter indicating the state of compositional distribution of structural units in the molecular chain of the copolymer and can be calculated according to the following equation (I).

$$B = \text{POE} / (2 * \text{PO} * \text{PE})$$

In this equation, PE and PO represent the mole fractions of the ethylene units and the α -olefin units, respectively, in the ethylene/ α -olefin random copolymer and POE is a proportion of number of ethylene/ α -olefin alternating chains in the total number of dyad chains.

The values for PE, PO and POE can be calculated in the practice as follows:

A sample of an ethylene/ α -olefin random copolymer (B) is prepared by dissolving 200 mg of the random copolymer homogeneously in 1 ml of hexachlorobutadiene in a 10 mm Φ test tube, whereupon ^{13}C -NMR spectrum of this sample is observed under the following conditions:

examination temperature	120° C.
examination frequency	20.05 MHz
breadth of spectral line	1500 Hz
width of filter	1500 Hz
pulse repetition interval	4.2 sec.
pulse width	7 μ sec.
number of integration	2,000-5,000

The values of PE, PO and POE can be determined according

to the methods reported, for example, by G. J. Ray {'Macromolecules', 10, 773 (1977)}, by J. C. Randall {'Macromolecules', 15, 353 (1982)} and by K. Kimura {'Polymer', 25, 4418 (1984)}, based on the ¹³C-NMR spectrum observed as above.

The B-value equals 2, when both the comonomer units are **ideally** alternating in the ethylene/ α -olefin random copolymer, and equals to zero, when both the comonomer units are present in the copolymer as **ideal** block-copolymer by being completely separately polymerized.

When an ethylene/ α -olefin random copolymer (B) having a B-value in the range of 1.0-1.4 is used, a polypropylene resin composition exhibiting superior heat resistance can be obtained. (Emphasis added).

Accordingly, firstly, Tanaka, et al. clearly discloses that the **B-value** for the ethylene/ α -olefin random copolymer (B) should be from 1.0 to 1.4 to produce a resin having superior heat resistance, which is the object of Tanaka, et al. See col. 1, lines 35-39. Therefore, this additionally dictates if a polypropylene resin composition having superior heat resistance is not obtained, then the ethylene/ α -olefin random copolymer (B) does **not** have a B-value from 1.0 to 1.4. Accordingly, if the object of the disclosure of Tanaka, et al. is not obtained, then the ethylene/ α -olefin random copolymer does **not** have the required B-value from 1.0 to 1.4. Thus, Applicant respectfully believes any ethylene/ α -olefin random copolymer **not** having the required B-value from 1.0 to 1.4 would not, at the very least, be within the scope of the supposed invention described in Tanaka, et al., and as such would not be described with sufficient specificity to constitute an anticipation under the

statue, as well as would not be sufficiently described in Tanaka, et al. to enable one of ordinary skill in the art to adequately produce compositions comprising an ethylene/ α -olefin random copolymer **not** having the required B-value from 1.0 to 1.4. As such, Applicant respectfully believes the current rejection should be withdrawn.

Notwithstanding the above, taking the entire disclosure of Tanaka, et al. into context surrounding the above-captioned portion highlighted by the Examiner, which is outlined above, Tanaka, et al. discloses that the B-value, which is derived mathematically from formula (I), can theoretically equal 2 when both comonomer units are **ideally** altering in the ethylene/ α -olefin random copolymer. However, the ideal altering of the comonomer units in the ethylene/ α -olefin random copolymer is merely theoretical. As such, this upper value of 2, which is merely a single possible mathematical result of formula (I) amongst a myriad of other possible values, is simply a theoretical result derived from formula (I), and **not** an actual B-value the ethylene/ α -olefin random copolymer can have. Therefore, the upper range of 2 of the B-value disclosed in Tanaka, et al., which the Examiner is attempting to use to substantiate the instant anticipation rejection, **is merely a theoretically mathematical value that formula (I) can possibly produce, and not an actual value that the ethylene/ α -olefin random copolymer of Tanaka, et al. can have.** In fact, as outlined above, if the object of the disclosure of Tanaka, et al. is not obtained,

then the ethylene/ α -olefin random copolymer does **not** have a B-value from 1.0 to 1.4. Accordingly, any ethylene/ α -olefin random copolymer **not** having a B-value from 1.0 to 1.4 would not be within the supposed invention of Tanaka, et al.

Similarly, the lower range of zero for the B-value disclosed in Tanaka, et al. can only occur if the comonomer units are present in the copolymer as **ideal** block-copolymers by being completely separately polymerized. However, as with the merely theoretical and mathematical upper value of 2 for the B-value disclosed in Tanaka, et al., the lower range of zero is also only merely a **theoretically mathematical value** as well, **and not an actual value that the ethylene/ α -olefin random copolymer of Tanaka, et al. can have.** As with the theoretically mathematical upper value of 2 for the B-value disclosed in Tanaka, et al., any ethylene/ α -olefin random copolymer **not** having a B-value from 1.0 to 1.4 would not be within the supposed invention of Tanaka, et al. Accordingly, since the range for the B-value in Tanaka, et al. being relied upon by the Examiner would not have placed the public in possession of these values, Applicant respectfully believes the values relied upon by the Examiner are not sufficient to establish an actual anticipation under the statute. As such, Applicant respectfully believes the current rejection should be withdrawn.

Furthermore, Applicant traverses the Examiner's use of the document "Polypropylene" by R. Lieberman, et al. (herein referred to

as "R. Lieberman, et al.") in the rejection outlined in the Office Action having a mailing date of April 3, 2008. First and foremost, the aforementioned Office Action states claims 1-6 are rejected as **anticipated** by Tanaka, et al. As outlined *supra*, well-established law clearly states that anticipation must be found **within a single reference**. See *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), and *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). The **only** caveat to this rule is when references are used to interpret what the allegedly anticipating reference discloses, or in the case of inherency, is used to make clear the missing described matter is necessarily present in the thing described in the reference. See *Studiengesellschaft Kohle, M.B.H. v. Dart Industries, Inc.*, 726 F.2d 724, 726, 220 U.S.P.Q. 841, 842 (Fed. Cir. 1984), and *Continental Can Company USA, Inc. v. Monsanto Company*, 948 F.2d 1264, 20 U.S.P.Q.2D. 1746 (Fed. Cir. 1991). However, the additional references **may not** be used to supplement, expand, or fill gaps in the teachings of the applied reference, nor is this caveat a substitute for determination of patentability in terms of §103, *Id.* at 726 F.2d 724, 726, and 948 F.2d 1264. Additionally, the Examiner must provide factual and technical grounds establishing that the inherent feature **necessarily flows** from the teachings of the prior art. See *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (BPAI 1990). Inherency **must** flow as a

necessary conclusion from the prior art, not simply a possible one. *In re Oelrich*, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981). Additionally, for the Examiner to establish inherency, the extrinsic evidence, "must make clear that the missing descriptive matter is **necessarily** present in the thing described in the reference. Inherency, however, **may not be established by probabilities or possibilities**. The mere fact that a certain thing **may result** from a given set of circumstances **is not sufficient**." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999), (Emphasis added).

With respect to the instant rejection, Applicant respectfully believes the Examiner is impermissibly using *R. Lieberman, et al.* in an attempt to expand and fill gaps in the disclosure of *Tanaka, et al.* In fact, the Examiner states in the Office Action having a mailing date of April 3, 2008 on page 5, line 15 - page 6, line 5, ,

Applicant requested provide evidence to support Examiner statement (see rejection, paragraph 1.2):

'viscosity is **inherent** function of molecular weight and molecular weight distribution **for polymers of the same chemical composition** and can be also characterized by melt flow rate (MFR).'

. . . Instead, **polymer chain length** is measured indirectly in several ways. For many years, the intrinsic viscosity (IV) of the polymer was measured. IV results were directly proportional to **polymer chain length**. That is, the higher the IV, the longer the average **chain length**. (Emphasis added).

However, first and foremost, Applicant respectfully believes the Examiner has not demonstrated the polymer compositions of Tanaka, et al. are "the same chemical composition" as currently claimed by Applicant. In fact, the Examiner's basis for the current rejection is irrevocably flawed insomuch that the Examiner must assume Applicant's currently claimed compositions are anticipated by Tanaka, et al. (i.e., the compositions of Tanaka, et al. are of "the same chemical composition" as those currently claimed) in order to try and substantiate the Examiner's basis for attempting to prove all of the supposedly inherent features disclosed in Tanaka, et al. are, in fact, necessarily present. However, this type of circular reasoning is clearly erroneous. Anticipation cannot be loosely applied in order to try and substantiate a charge of inherency, or, in other words, as an attempt to supplement, expand, or fill the gaps of Tanaka, et al. *Id.* 948 F.2d 1264. Accordingly, given the Examiner is using the wrong legal standard required for an anticipation rejection under the statute, as well as using the wrong legal standard for an anticipation rejection based on inherency under the statute and legal precedent, Applicant respectfully believes the current rejection should be withdrawn.

Additionally, Applicant respectfully believes the current rejection is irrevocably flawed given the Examiner has provided no evidence demonstrating that the supposed melt flow rate ranges disclosed in Tanaka, et al. necessarily are the same as the currently claimed intrinsic viscosity ratios claimed by Applicant.

See page 3, lines 3-13 in the aforementioned Office Action. In an attempt to establish such a necessity, the Examiner cites R. Lieberman, et al. However, Lieberman, et al. merely states that intrinsic viscosity results are proportional to the **average** polymer chain length, while melt flow rate results are the **inverse of chain length**. See page 530, lines 2-4, and line 14 in Lieberman, et al. Furthermore, Lieberman, et al. merely states polymer chain length can be related to melt flow rate, but that all reactions produce polymers with unequal chain lengths. See page 530, lines 22-23 and 26-27 in Lieberman, et al. Accordingly, even if in the broadest and most general terms there may be some random intermittent correlation between the various physical properties of polymers, the Examiner has not demonstrated in any capacity that the specifically claimed intrinsic viscosity ratios of the currently claimed resins are inherently, **without probabilities or possibilities**, disclosed in Tanaka, et al., and Lieberman, et al. does not remedy this deficiency. In fact, there is absolutely no disclosure, teaching, or suggestion in Tanaka, et al. to arrive at any conclusion otherwise, nor does Lieberman, et al. provide any extrinsic evidence to the contrary. Therefore, Applicant respectfully believes the current rejection should be withdrawn.

In addition to the arguments *supra*, Applicant generally traverses the Examiner's use of Lieberman, et al. based on the publication date of the document. In particular, based on the

information provided to Applicant by the Examiner, Applicant believes Lieberman, et al. was made publicly available on **March 24, 2006**. However, Applicant's instant application has an effective U.S. filing date of **March 10, 2003**, with a priority filing date of **March 14, 2002**, and Tanaka, et al. has an effective U.S. filing date of **February 10, 1999**, with a priority filing date of **February 10, 1998**. Although Applicant is aware it is not wholly improper to rely on a document as extrinsic evidence having publication date after the critical dates of Applicant's application, it is however incumbent on the Examiner to explain how Lieberman, et al. sheds light on what Tanaka, et al. would have meant to those skilled in the art at the time of filing of Tanaka, et al., and not to improperly supplement, expand, or fill gaps in Tanaka, et al., or how Lieberman, et al. makes clear the missing descriptive matter is **necessarily** present in Tanaka, et al., and that the disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function. *Id.* at 726 F.2d 724, 726, and 948 F.2d 1264. However, as outlined above, the current rejection clearly falls short of the required showing by the Examiner. As such, Applicant respectfully believes the use of Lieberman, et al. by the Examiner should be rescinded, and the current rejection should be withdrawn.

In light of the above, claims 13-24 are therefore believed to be patentable over Tanaka, et al. Accordingly, reconsideration and

withdrawal of the rejection is respectfully requested.

CONCLUSION

Based upon the above remarks, the presently claimed subject matter is believed to be novel and patentably distinguishable over the prior art of record. The Examiner is therefore respectfully requested to reconsider and withdraw all rejections, and allow all pending claims 13-24. Favorable action with an early allowance of the claims pending in this application is earnestly solicited.

The Examiner is welcomed to telephone the undersigned practitioner if she has any questions or comments.

Respectfully submitted,

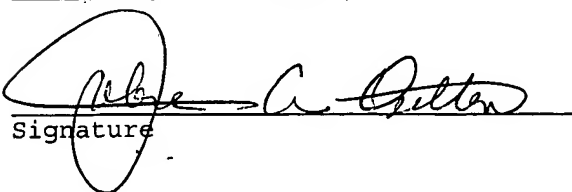
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